

What is claimed is:

1. A combination seal ring with an encoder for use between a fixed ring having a circumferential face and a rotational ring having a circumferential face wherein a space exists between the circumferential face of the fixed ring and the circumferential face of the rotational ring and has an end portion with an opening, so as to close off the opening of the space and to detect a rotational speed of the rotational ring, comprising:
  - a seal ring secured to the circumferential face of the fixed ring,
  - a slinger made of metal and secured to the circumferential face of the rotational ring, and
  - an encoder supported by and secured to the slinger,
  - the seal ring comprising a metal core consisting of a fixed cylindrical portion which has an end rim and is fitted and secured to the circumferential face of the fixed ring, and a fixed circular ring portion bent toward the circumferential face of the rotational ring from the end rim of the fixed cylindrical portion; and a resilient member bonded all around the metal core and having seal lips with an end rim,
  - the slinger comprising a rotational cylindrical portion which has an end rim and is fitted and secured to the circumferential face of the rotational ring, and a rotational

circular ring portion which is bent toward the circumferential face of the fixed ring from the end rim of the rotational cylindrical portion and has an end rim, and the rotational circular ring portion having a first side face and second side face axially opposite to each other,

the slinger having a smooth surface portion on the circumferential face of the rotational cylindrical portion and on the first side face of the rotational circular ring portion, respectively, against which the respective end rim of the seal lips is rubbed,

the encoder having an end rim and being made of a rubber magnet in which S poles and N poles are alternately arranged in the circumferential direction, and bonded and supported on the second side face of the rotational circular ring portion, which is opposite to the seal lips, and the encoder bonded to the rotational circular ring portion by a molding process, wherein this second side face is utilized for molding, and,

the end rim of the encoder existing in a position depressed by at least 0.2 mm from the end rim of the rotational circular ring portion, in the diametrical direction.

2. A combination seal ring with an encoder for use between a fixed ring having a circumferential face and a rotational ring having a circumferential face wherein a space exists between the circumferential face of the fixed ring and the circumferential face of the rotational ring and has an end portion with an opening, so as to close off the

opening of the space and to detect a rotational speed of the rotational ring, comprising;

a seal ring secured to the circumferential face of the fixed ring,

a slinger made of metal and secured to the circumferential face of the rotational ring, and

an encoder supported by and secured to the slinger,

the seal ring comprising a metal core consisting of a fixed cylindrical portion which has an end rim and is fitted and secured to the circumferential face of the fixed ring, and a fixed circular ring portion bent toward the circumferential face of the rotational ring from the end rim of the fixed cylindrical portion; and a resilient member bonded all around the metal core and having seal lips with an end rim ,

the slinger comprising a rotational cylindrical portion which has an end rim and is fitted and secured to the circumferential face of the rotational ring, and a rotational circular ring portion which is bent toward the circumferential face of the fixed ring from the end rim of the rotational cylindrical portion and has an end rim , and the rotational circular ring portion having a first side face and second side face axially opposite to each other,

the slinger having a smooth surface portion on the circumferential face of the

rotational cylindrical portion and on the first side face of the rotational circular ring portion, respectively, against which the respective end rim of the seal lips is rubbed,

the encoder having an end rim and being made of a rubber magnet in which S poles and N poles are alternately arranged in the circumferential direction, and bonded and supported on the second side face of the rotational circular ring portion, which is opposite to the seal lips, and the encoder bonded to the rotational circular ring portion by a molding process, wherein this second side face is utilized for molding, and,

the end rim of the encoder having a part which covers the end rim of the rotational circular ring portion so as to be connected to the end rim of the rotational circular ring portion.

3. A combination seal ring with an encoder of one of Claims 1 and 2, having a height in cross section between 4 mm and 7 mm, wherein the encoder has a height in cross section at least 2.0 mm.

4. A bearing unit for an automobile having the combination seal ring of Claim 1 incorporated therein.

5. A bearing unit for an automobile having the combination seal ring of Claim 2 incorporated therein.

6. A bearing unit for an automobile having the combination seal ring of Claim 3

incorporated therein.